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Performance Oriented Packaging Testing of the Unit Load (MIL-STD-1322-108) for the 8 Pack of Task A Assemblies Packing Group II Solid Hazardous Materials

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13. ABSTRACT (Maximum 200 words)

This Performance Oriented Packaging (POP) test was conducted to ascertain whether the Unit Load (MIL-STD-1322-108) for the 8 Pack of Task A Assemblies (Packing Group II) meets the requirements specified by the United Nations Recommendation on the Transportation of Dangerous Goods Document, ST/SG/AC.10/1, Revision 6, Chapters 4 and 9 and the Code of Federal Regulations, Title 49 CFR, Parts 107 through 178, dated 1 October 1991. The unit load's contents consisted of a simulated Task A 8-pack assembly weighing 246 kg (544 pounds), and an additional 21 kg (48 pounds) of weight. Gross weight of the unit load was 346 kg (763 pounds). The test results indicate that the unit load has conformed to the POP requirements.

14. SUBJECT TERMS

POP Test of the Unit Load (MIL-STD-1322-108) for the 8 Pack of Task A Assemblies

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PERFORMANCE ORIENTED PACKAGING TESTING OF UNIT LOAD (MIL-STD-1322-108) FOR THE 8 PACK OF TASK A ASSEMBLIES PACKING GROUP II SOLID HAZARDOUS MATERIALS

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June 1992

FINAL

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INTRODUCTION

This Performance Oriented Packaging (POP) test was conducted to ascertain whether the Unit Load (MIL-STD-1322-108) for the 8 Pack of Task A Assemblies (Packing Group II) meets the requirements specified by the United Nations Recommendation on the Transportation of Dangerous Goods Document, ST/SG/AC.10/1, Revision 6, Chapters 4 and 9 and the Code of Federal Regulations, Title 49 CFR, Parts 107 through 178, dated 1 October 1991. The unit load's contents consisted of a simulated Task A 8-pack assembly weighing 246 kg (544 pounds), and an additional 21 kg (48 pounds) of weight. Gross weight of the unit load was 352 kg (763 pounds).

Due to unavailability only one unit load was used for testing. This is less than the number required by the regulations. Approval for this deviation has been granted by the Under Secretary of Defense, Memorandum for the Joint Logistics Commanders dated 22 February 1990.

TESTS PERFORMED

1. Base Level Vibration Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.608. The unit load was placed on a repetitive shock platform which has a vertical linear motion of 1-inch double amplitude. Movement of the unit load was restricted during vibration in all but the vertical direction. The frequency of the platform was increased until the unit load left the platform 1/16 of an inch at some instant during each cycle. Test time was 1 hour.

2. Stacking Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.606. The unit load was subjected to a force applied to its top surface equivalent to the total weight of identical packages stacked to a minimum height of 3 meters (including the test load). A weight of 1,730 kg (3,815 pounds) was stacked on the test load. The test was performed for 24 hours. The weight was then removed and the unit load examined.

3. Drop Test

This test was performed in accordance with Title 49 CFR, Part 178, Subpart M, Sec. 178.603. Five drops were performed from a height of 1.2 meters (4 feet), impacting the following surfaces:

a. Flat bottom.

b. Flat top.

c. Flat on long side.

d. Flat on short side.

e. One corner.

PASS/FAIL

1. Base Level Vibration Test

The criteria for passing the base level vibration test is outlined in Title 49 CFR, Sec. 178.608(c): No test sample should show any deterioration which could adversely affect transportation safety or any distortion liable to reduce packaging strength.

2. Stacking Test

The criteria for passing the stacking test is outlined in Title 49 CFR, Sec. 178.606(d): No test sample may show any deterioration which could adversely affect transportation safety or any distortion likely to reduce its strength, cause instability in stacks of packages, or cause damage to inner packagings likely to reduce safety in transportation.

3. Drop Test

The criteria for passing the drop test is outlined in Title 49 CFR, Sec. 178.603(f): A package is considered to successfully pass the drop tests if for each sample tested, no rupture occurs which would permit spillage of loose explosive substances or articles from the outer packaging.

TEST RESULTS

1. Base Level Vibration Test

Satisfactory.

2. Stacking Test

Satisfactory.

3. Drop Test

Satisfactory.

DISCUSSION

1. Base Level Vibration Test

The input vibration frequency was 3.6 Hz. Immediately after the vibration test was completed, the unit load was removed from the platform, turned on its side and inspected. No unfavorable distortion or deterioration was observed.

2. Stacking Test

The unit load was inspected after the 24-hour period was over. No unfavorable distortion or deterioration was observed.

3. Drop Test

After each drop, the unit load was inspected. The contents were completely retained by the unit load.

REFERENCE MATERIAL

A. United Nation's "Recommendation on the Transportation of Dangerous Goods," ST/SG/AC.10/1, Revision 6.

B. Code of Federal Regulations, Title 49 CFR, Parts 107-178.

C. Bureau of Explosives Tariff No. BOE 6000K Hazardous Materials Regulations of the Department of Transportation by Air, Rail, Highway, Water including Specifications for Shipping Containers.

DISTRIBUTION LIST

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TEST DATA SHEET

DATA SHEET:	
Unit Load: Unit Load (MIL-STD-1322-108) for the 8 Pack of Task A Assemblies	
Type: 4C1	**Container P/N or NSN:** MIL-STD-1322-108
Specification Number: N/A	**Material:** Wood
Gross Weight: 346 kg (763 pounds)	**Dimensions:** 76-1/2" L x 26-1/2" W x 22-3/4" H
Closure (Method/Type): Strapping	**Tare Weight:** 77 kg (171 pounds)
Additional Description:	

PRODUCT:		
Name: See table	**NSN(s):** See table	
United Nations Number: See table		
United Nations Packing Group: II		
Physical State (Solid, Liquid, or Gas): Solid		
Vapor Pressure (Liquids Only): N/A	**At 50 °C:** N/A	**At 55 °C:** N/A
Consistency/Viscosity: N/A	**Density/Specific Gravity:** N/A	
Amount Per Container:	**Flash Point:** N/A	
Net Weight: See table		

TEST PRODUCT:	
Name: 8-Pack Assembly	**Physical State:** Solid
Consistency: N/A	**Density/Specific Gravity:** N/A
Test Pressure (Liquids Only): N/A	
Amount Per Container: N/A	**Net Weight:** 268 kg (592 pounds)
Additional Description: Each canister in the 8-pack was filled with a steel tube, and wood and lead weights. The net weight includes the total maximum product weight plus an additional 21 kg (48 pounds).	

TABLE 1
Products Approved for Shipping the Unit Load for the 8 Pack of Task A Assemblies

NALC/ DODIC	NSN	Product Nomenclature	Packing Drawing Number	Haz Class/ Div	UN Number	Units/ Cntr	Total Net Weight (lb)	Total Gross Weight (lb)
N/A	N/A	8 Pack of Task A Assemblies	MIL-STD-1322-108	1.1D	0463	1	544	715

N/A = Not Assigned

UNIT LOAD (MIL-STD-1322-108) FOR THE 8 PACK OF TASK A ASSEMBLIES

POP MARKING

UN 4C1/Y346/S/**/USA/DOD/NAD

** YEAR LAST PACKED OR MANUFACTURED

Encl (2)